

COMPILATION OF COSMOGENIC RADIONUCLIDES IN METEORITES.

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Since 1958, when long half-life cosmogenic nuclides in meteorites were first reported, a large amount of data has been published in different journals. The rapid growth in the accumulation of data in the last decade was caused by two new techniques. The neutron activation method was developed for ^{53}Mn determination. Accelerator mass spectrometry was now widely used for other nuclides. The cosmogenic nuclide data provide much information about the meteorites, especially concerning the last few million years time scale. Some examples are cosmic-ray exposure age, terrestrial age, complex irradiation history, size and depth of the sample in the meteoroid, cosmic-ray intensity and so on. If one combines the cosmogenic radionuclide data and noble gas and cosmic-ray track data, more detailed discussion will be possible. Schultz and Kruse have previously compiled light noble gas data in meteorites [1]. Bhandari et al compiled nuclear track data [2].

I have compiled all available data for the concentration of cosmogenic nuclides ^{53}Mn ($t_{1/2} = 3.7 \times 10^6$ years), ^{26}Al (7.05×10^5 years), ^{10}Be (1.6×10^6 years), ^{36}Cl (3.0×10^5 years) and ^{21}Ne , and $^{22}\text{Ne}/^{21}\text{Ne}$ ratios in stony, iron, and stony-iron meteorites. For iron meteorites, the $^4\text{He}/^{21}\text{Ne}$ ratio was adopted instead of $^{22}\text{Ne}/^{21}\text{Ne}$ ratio, because the $^4\text{He}/^{21}\text{Ne}$ ratio in iron meteorites indicates the shielding condition of the sample. The compilation contains over 2000 different analyses for four cosmogenic radionuclides (see Table 1). The list also contains about 200 unpublished data by the author. A preliminary version of the table will be presented at the meeting. Final compilation will be published elsewhere soon. I would be most grateful to receive additional data, published or unpublished.

REFERENCES:

- [1] Schultz L. and Kruse H. (1978) Nucl. Track Detection 2, p. 65-103.
[2] Bhandari N., Lal D., Rajan R. S., Arnold J. R., Marti K. and Moore C. B. (1980) Nucl. Track 4, p. 213-262.

TABLE 1

	No. of meteorites	^{53}Mn	^{26}Al	^{10}Be	^{36}Cl
Stony	674	431	839	128	110
Stony-iron	20	27	6	7	31
Iron	89	125	87	55	146
Total	783	583	982	190	287